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**WASTE FORMS AT FERNALD FERNALD  
ENVIRONMENTAL MANAGEMENT PROJECT  
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**DOE-FN/PUBLIC  
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FACTSHEET**

# WASTE FORMS AT FERNALD



**FERNALD**

Environmental Management Project

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Three basic types of waste materials are stored at Fernald, and each type is managed individually according to applicable federal and state regulations and Department of Energy (DOE) orders.

Fernald's waste management program is responsible for sampling and analyzing waste materials to determine their nature and origin. This information is necessary to determine appropriate handling, treatment, storage, and disposal options. Procedures are in place for regular monitoring and frequent inspections of all waste materials in storage at Fernald.

## **Low-Level Radioactive Waste**

The vast majority of waste at Fernald is low-level radioactive waste, the result of Fernald's 37-year mission to produce uranium metal products to support U.S. defense programs. Low-level waste refers to materials with relatively low radioactivity levels similar to those found in natural uranium and thorium. Low-level waste is managed in three categories at Fernald:

Containerized residues are stored in various sizes of steel drums and metal boxes. This waste

material is the result of past production operations, and includes uranium-bearing and thorium-bearing waste. Thorium also was processed at Fernald. Containerized residues are stored inside former production buildings and large tent-like structures, and outdoors on concrete pads. Approximately 120,000 drum equivalents of containerized residues are stored at Fernald. A drum equivalent is the amount of material which can fit into a 55-gallon drum, or about 7.4 cubic feet. The containerized waste inventory includes 50,000 drums of uranium-bearing waste, 20,000 drum equivalents of uranium-bearing waste in metal boxes, and 15,000 drum equivalents of thorium in various containers.

Bulk stored waste includes large volumes of contaminated scrap metal and contaminated soil and debris. Scrap metal piles are stored outdoors on controlled pads; soil and debris piles are covered with tarpaulins and stored outdoors within barriers designed to prevent rainwater runoff from carrying contamination into the environment. There are 40,000 drum equivalents of bulk scrap metal currently in storage at Fernald, plus several large piles of contaminated soil and debris.

Currently-generated waste includes waste generated from cleanup activities such as slightly-contaminated construction rubble and demolition debris. This type of low-level waste is packaged in large metal boxes and stored outdoors. Currently-generated waste accumulates at a rate of approximately 3,000 drum equivalents per year.

Risks posed by low-level uranium-bearing waste include contaminant migration to the environment via air, water, or soil pathways, and exposure to humans through ingestion or inhalation. Thorium requires remote handling techniques and shielding with lead or concrete to protect workers from gamma radiation, which can enter the body through the skin.

Procedures for proper handling, storage, treatment, and disposal of low-level radioactive waste are outlined in U.S. EPA-approved work plans as part of the cleanup agreement between the DOE and the U.S. and Ohio Environmental Protection Agencies (EPA). Fernald has been actively shipping low-level waste off site for disposal since 1985. Current schedules call for off-site disposal of all low-level waste by 1996.

## Hazardous Waste

Hazardous waste at Fernald is regulated by the Resource Conservation and Recovery Act (RCRA), a federal law designed to ensure safe handling and storage of hazardous waste. Hazardous wastes are generated in small amounts at Fernald; primarily oils and solvents used for equipment and vehicle maintenance and laboratory work.

Hazardous waste is packaged in drums and stored in warehouses equipped with dikes for spill control and fire suppression equipment. Drums are labeled and positioned in the warehouses according to their hazard types. Hazardous waste containers and facilities at Fernald are inspected weekly. Fernald's hazardous waste is shipped to treatment, storage

and disposal facilities permitted by the EPA to destroy or stabilize the hazardous materials in the waste. The hazardous waste is in the form of liquids, solids, and sludges.

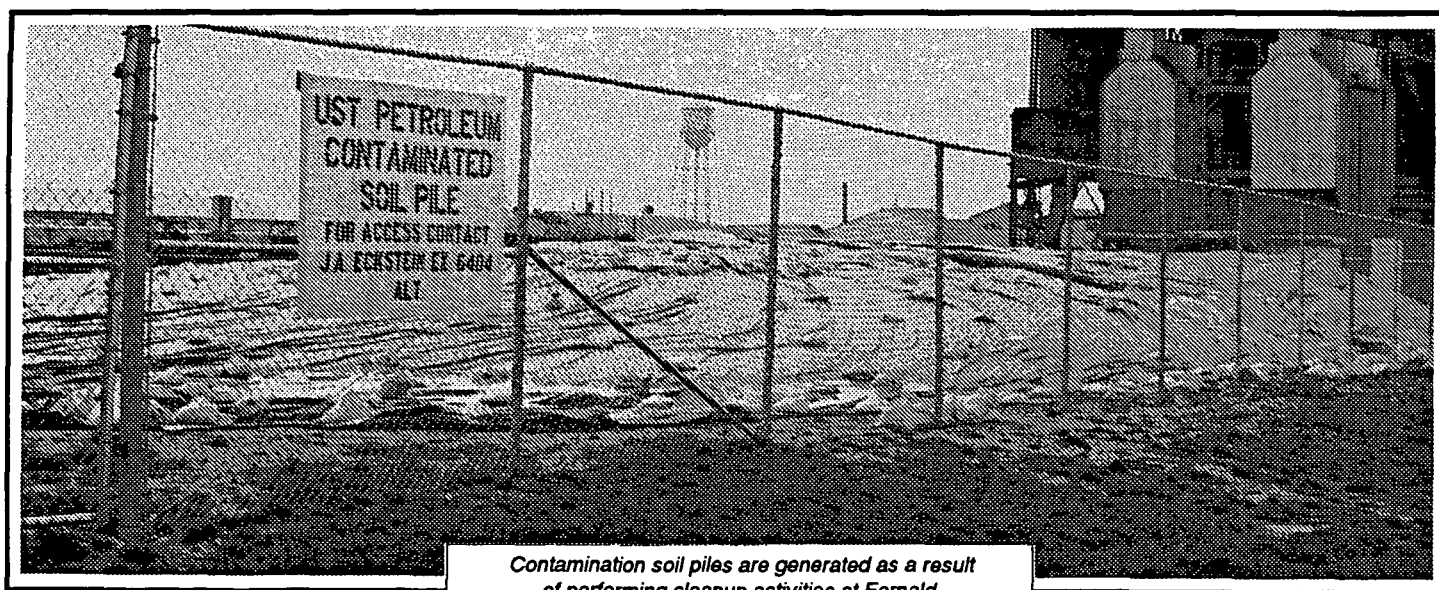
## Mixed Waste

Mixed waste at Fernald is a combination of radioactive and hazardous waste materials. Currently there are approximately 12,500 containers (mostly drums) of mixed waste stored in warehouses at Fernald. The same EPA guidelines that apply to the storage of hazardous waste also apply to the storage of mixed waste at Fernald. The mixed waste is in the form of liquids, solids, and sludges (for example material with the consistency of a milk-shake or peanut butter). Treatment and disposal options for Fernald's mixed waste are being evaluated.

## Sanitary Waste

Sanitary waste at Fernald includes cafeteria waste, administrative paper waste, flyash generated as a result of burning coal in the boiler plant, and other industrial-type wastes which are neither radioactive nor hazardous. Bulk sanitary waste is disposed of in local landfills as it is generated; this type of waste is not stored at Fernald. Sanitary waste is monitored prior to off-site disposal to ensure that it contains no radiological or hazardous materials.

*For more information about this topic or about other Fernald activities and issues, contact the Office of Public Information, DOE Fernald Field Office, at (513) 648-3131.*



Contamination soil piles are generated as a result of performing cleanup activities at Fernald.